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SUMMARY

Agenda Item : D.4.2

France

THE PERMEABILITY TO WATER VAPOUR OF THIN, FLEXIBLE PLASTIC FILMS, AS A FUNCTION OF THICKNESS, TEMPERATURE AND HUMIDITY

By Ph. BLANCHE,
Engineer,
Laboratoire général pour emballages
(Packaging Laboratory)

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THE PERMEABILITY TO WATER VAPOUR OF THIN, FLEXIBLE PLASTIC FILMS, AS A FUNCTION OF THICKNESS, TEMPERATURE AND HUMIDITY

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The increasing use of plastic films in packaging as a protection against humidity, demands a fairly accurate knowledge of their permeability to water vapour under varying conditions. Knowledge of the permeability rate is essential to determine the period for which the film is an effective protection, as well as the calculated quantity of dehydrating agent to place in the volume to be protected. It should also enable the user to choose the thickness and type of plastic film which suits the function and its duration.

All these considerations led the Packaging Laboratory to undertake an investigation with the double purpose of determining:

(1) the simplest and surest method of determining the permeability to water vapour of film barrier materials

(2) the permeability rate of polythene films as a function of:

- (a) thickness of film
- (b) temperature
- (c) relative humidity, hence of the partial vapour pressure at a given temperature.

The first results are given in two tables, but tests are continuing. Polythene has been chosen for the laboratory tests simply because it was easily obtainable in a sufficiently wide range of thicknesses. The programme of the Packaging Laboratory, however, includes investigations into other barrier materials used for packaging.

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